The DoD Context for I-CASE
I-CASE Bidders Conference, Montgomery, Alabama, March 31, 1992

Office of the Director of Defense Information

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Paul A. Strassmann

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Technology and Warfare

Technology without tactical and doctrinal context is merely an engineering curiosity: operationally it is a force divider.

The COPERNICUS Architecture, August 1991

Slide 2

CASE and Software Productivity

Faster production of code may do nothing more than help you arrive at a disaster sooner than before.

We do not need tools that produce brilliant solutions to the wrong problem.

Ed Yourdon, Decline & Fall of the American Programmer, 1992

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Outline

- Reasons for DoD I-CASE
- The Tactical and Strategic Context for I-CASE

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Driver of CIM: Small Forces Deployment

- The needs of small, mobile, rapidly deployed and locally managed forces shall be the central focus of CIM programs.
- The objective of Information Management is to deliver DoD growing requirements with less resources.

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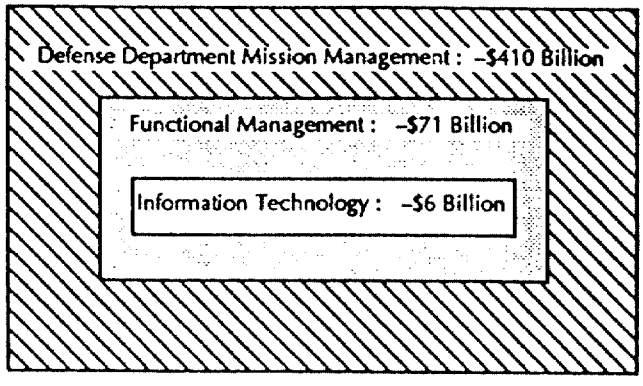
Defense Information Management Tasks for 1990-1997



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Corporate Information Management Programs

Civilian Payroll	Financial & Accounting Svces
Travel	Financial & Accounting Svces
Retired Pay	Financial & Accounting Svces
Contract Payment	Financial & Accounting Svces
Financial Operations	Financial & Accounting Svces
Government Furnished Materials	Financial & Accounting Svces
Civilian Personnel	Air Force
Depot Maintenance	Air Force
Materials Requirements	Air Force
Distribution Center Operations	Defense Logistics Agency
Materials Asset Management	Army
Technical Documentation	Army
Materials Item Introduction	Marine Corps
Materials Acquisition Management	Navy
Engineering Drawing Management	Navy
Composite Health Care System Blood Management System, Medical Logistics, Dental Services, Theater Mgmt.	Medical Services
Procurement	Air Force
Command and Control	Joint Chiefs of Staff

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Information Technology Objectives

DoD Missions:

- Rapid response to variable threats with less resources.

Information Technology Missions:

- 100% re-usable data & infinite life for data definitions.
- 80%+ re-usable code & 20+ year life on software elements.
- 80%/20% development/maintenance ratio.
- Technology asset life > 2-3 times technology innovation cycle

Note: Information Technology only a small fraction of the total costs and benefits of CIM. CASE only small fraction of the total cost of IT!

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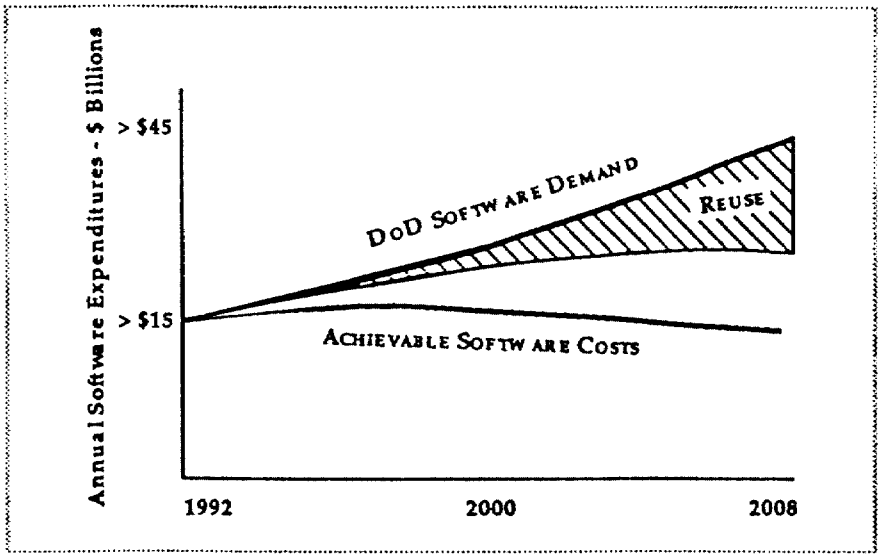
Estimate of DoD Achievable Software Costs



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DoD Information Management Doctrine - Design

- Pursue evolutionary and incremental systems deployment.
- Give customers capacity for making complex inquiries.
- Have business process redesign precede systems design.
- Construct variety from software and not hardware.
- Make software a repeatable, defined and managed process.

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DoD Information Management Doctrine - Management

- Establish technical systems integration capabilities as the core Defense systems capability.
- Replace current over-emphasis on technology acquisition costs with focus on minimum life-cycle costs.
- Apply business process redesign methods to continuous and evolutionary effectiveness-enhancements.

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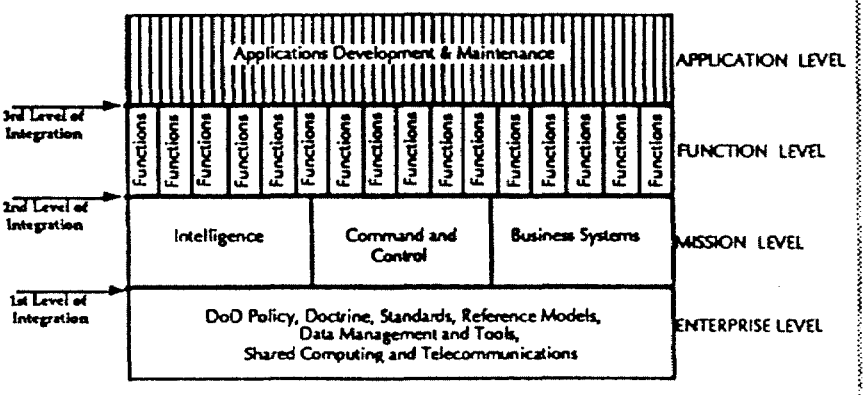
Required Levels of Integration in DoD



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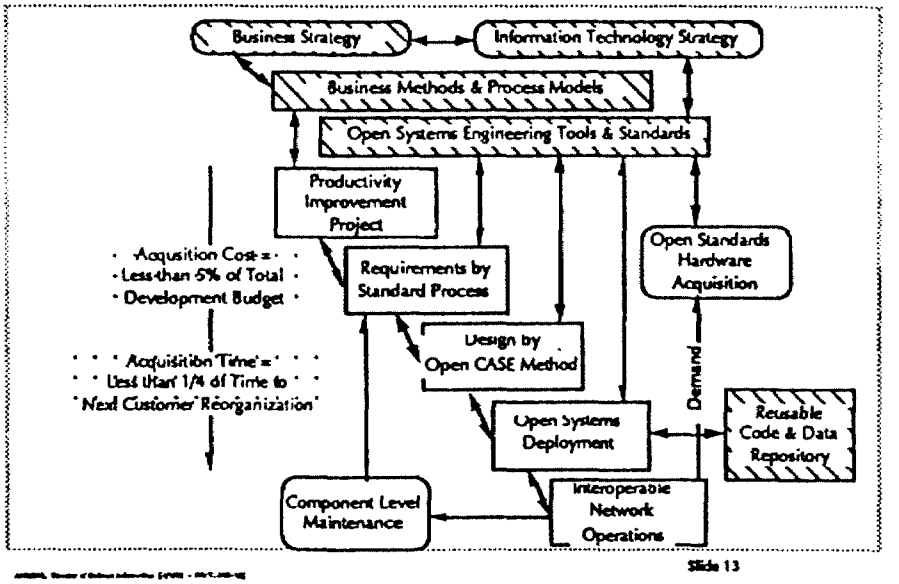
An Evolutionary and Rapid Response Acquisition Process



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Design Requirements for Deployable CIM Systems

- "Unlinearize" the software development process, making it interactive and incremental .
- Defined software development process, including requirements elicitation that recognizes the economics of choices.
- Specification & software component re-use for templates offering solutions. Data Definitions
- Coordination of teams of customers and developers not co-located. Capture tools, simulators, dynamic code analyzers, on-line design advisors, reverse engineering environments, application templates, measurement schema, domain classification analyzers, configuration management, etc. Cannot be intellectually overwhelming.
- New DoD Life Cycle Management Phases, Milestones and Policies support "incremental" and "evolutionary options.

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CASE Technology and Software Maturity

- Every world-class software organization uses CASE, but every CASE user is not a world-class organization!
- DoD I-CASE correctly centered around "repository", surrounded by everything a software organization needs to know in order to create, modify, maintain, and evolve applications. There is an infinite list of possible features. What matters is the combination of features and the ability of people to use them. Economic advantage: maintenance cost
- The objective of CASE is to help all organizations, whether DoD or bus. to move along the SEI stages of maturity model:

-To Level 2: Achieve a stable and repeatable process
-To Level 3: Define a quality-driven management process
-To Level 4: Implement measured process Control

- I-CASE is primarily a managerial process. Cooperation, group-work, emphasis on analysis & design, integration!

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CASE and Industrialization of Software Production

"International competition will put American programmers out of work in the first decade of the 21st century, just as Japanese competition put American automobile workers out of work in the 1970s." / E. Yourdon, The Decline and Fall of the American Programmer, 1992 /

- Will I-CASE threaten American leadership in software?
- Will I-CASE make software components a commodity?
- Is I-CASE the means for converting the American programmer from a quasi-monopolistic cottage industry craftsman to world-class competitive service industry?
- Will I-CASE drive capital investments to support software production labor?
- 200 lines of code * 200 days @$100= $4 million, @$10=$400K. CASE cost estimates (April 92 Comm ACM) understate.
- DoD commits to support U.S. commercial I-CASE industry

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The Roles of Risk Management in the DoD Warfighting Doctrine

- DoD as a risk-management enterprise - the insurance model
- The fundamental objective of DoD information technology is to reduce or even eliminate risk.
- By reducing risk, IT helps to balance resources, respond rapidly and use less resources.
- Positive progression from 1. *risk prevention;* to 2.*elimination of root causes;* to 3.*anticipation to management of change..*
- IT makes it possible to extend the boundaries for actions that counter risk exposures.
- Avoiding risk management through 1. *relief;* 2. *fix-on-failure;* 3. *crisis management.*
- Contractors by helping DoD to reduce risks, will help themselves. COTS implementation, rapid availability, robust offerings good for everyone.

Model based on CASE & the Management of Risk, Dr. Robert Charette

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The I-CASE Context

- Commercially supported solutions. Minimize development to an absolute minimum - offer proven, customer tested products!
- Short term delivery what can be delivered with assurance
- Evolutionary development. Looking for an association with a long track record and heavy managerial and professional commitment.
- Expect contractors to reflect their accumulated experiences with best CASE users.
- Managerial competence to support diverse needs is the key
- We discourage anyone who does not have something proven to offer, including managerial experiences in installation, result tracking and well regarded customer support.

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Summary - Tomorrow's Risks are Today's Opportunities

- DoD CIM program depends on I-CASE now.
- I-CASE enables functional consolidation to increase interoperability.
- I-CASE is key to software reuse and modernization of IT.
- I-CASE is necessary for distributed processing, to support survivability of DoD warfighting.
- Competition is essential - COTS are DoD policy and I-CASE is a tool to deliver that.
- I-CASE is vehicle for modernization of skills of DoD IRM professional, for a massive educational program and for systems integration.
- I-CASE vendors should assist in advancing process maturity.
- The objective of I-CASE vendors is to reduce DoD information technology risks.
- I-CASE is a good bet. DoD is committed to carry out, because we have no alternative solution. Best wishes and good luck!

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XC	~~Ms. Freeman~~ (1)		
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REMARKS

Make copy for me, & circulate to staff

Thx

Bill

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